ſtance o, and it is tranſmitted through both together, if their diſtance be infinitely little or much leſs than 1) the diſpoſition to be tranſmitted at the diſtances 2, 4, 6, 8, 10, &c. is to be accounted a return of the ſame diſpoſition which the ray firſt had at the diſtance o, that is at its tranſmiſſion through the firſt refracting ſurface. All which is the thing I would prove.

What kind of action or diſpoſition this is? Whether it conſiſt in a circulating or a vibrating motion of the ray, or of the medium, or ſomething elſe? I do not here enquire. Thoſe that are averſe from aſſenting to any new diſcoveries, but ſuch as they can explain by an Hypotheſis, may for the preſent ſuppoſe, that as Stones by falling upon Water put the Water into an undulating motion, and all Bodies by percuſſion excite vibrations in the Air; ſo the rays of Light, by impinging on any refracting or reflecting ſurface, excite vibrations in the refracting or reflecting medium or ſubſtance, and by exciting them agitate the ſolid parts of the refracting or reflecting Body, and by agitating them cauſe the Body to grow warm or hot; that the vibrations thus excited are propagated in the refracting or reflecting medium or ſubſtance, much after the manner that vibrations are propagated in the Air for cauſing ſound, and move faſter than the rays ſo as to overtake them; and that when any ray is in that part of the vibration which conſpires with its motion, it eaſily breaks through a refracting ſurface, but when it is in the contrary part of the vibration which impedes its motion, it is eaſily reflected; and, by conſequence, that every ray is ſucceſſively diſpoſed to be eaſily reflected, or eaſily tranſmitted, by every vibration which overtakes it. But whether

whether this Hypotheſis be true or falſe I do not here conſider. I content my ſelf with the bare diſcovery, that the rays of Light are by ſome cauſe or other alternately diſpoſed to be reflected or refracted for many viciſſitudes.

DEFINITION.

The returns of the diſpoſition of any ray to be reflected I will call its Fits of eaſy reflexion, *and thoſe of its diſpoſition to be tranſmitted its* Fits of eaſy tranſmiſſion, *and the ſpace it paſſes between every return and the next return, the* Interval of its Fits.

PROP. XIII.

The reaſon why the ſurfaces of all thick tranſparent Bodies reflect part of the Light incident on them, and refract the reſt, is, that ſome rays at their incidence are in Fits of eaſy reflexion, and others in Fits of eaſy tranſmiſſion.

This may be gathered from the 24th Obſervation, where the Light reflected by thin plates of Air and Glaſs, which to the naked Eye appeared evenly white all over the plate, did through a Priſm appear waved with many ſucceſſions of Light and Darkneſs made by alternate fits of eaſy reflexion and eaſy tranſmiſſion, the Priſm ſevering and diſtinguiſhing the waves of which the white reflected Light was compoſed, as was explained above.